



Introduction to JavaScript

“The worst widely used language out there in the world” - GT

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February 15, 2024

CMSC 383 Databases

Overview: What is JavaScript and why do we care?

Web Development

Used to make HTML dynamic and interactive

Learning JS



History of JavaScript

Created by Brendan Eich at Netscape in 1995

Initially named Mocha, then LiveScript, finally JavaScript

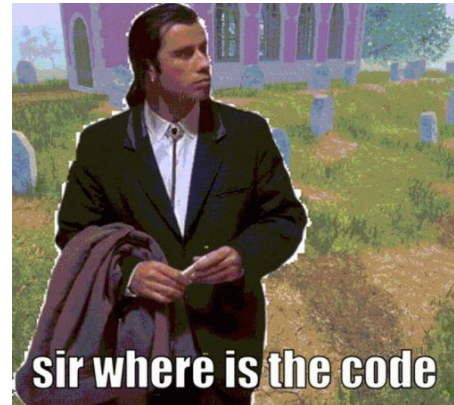
Built in 10 days



Dynamically Typed

Variable types are not explicitly declared and can change during execution

Static scoping: a variable's scope is determined by the variables location within the code





Here it is

EXAMPLE:

```
<button type="button" onclick='document.getElementById("demo").innerHTML = "Hello JavaScript!'">Click Me!</button>
```

`button type="button"` - Element

`onclick` - Event

`getElementById("demo")` - Finds the HTML element "demo"

`.innerHTML = "Hello JavaScript!"` - Changes the content of the element to "Hello JavaScript"



The `<script>` Tag

In HTML, JavaScript is written between `<script>` and `</script>` tags

Example:

```
<script>
```

```
document.getElementById("demo").innerHTML = "My First JavaScript";
```

```
</script>
```

JavaScript HTML Events

Something the browser or user does

- Web page finishing loading
- Input field is changed
- Button is clicked

JavaScript allows you to execute code following an event

In the following [example](#), an onClick event is added to a <button> element





Common Events

Event	Description
onchange	An HTML element has been changed
onclick	The user clicks an HTML element
onmouseover	The user moves the mouse over an HTML element
onmouseout	The user moves the mouse away from an HTML element
onkeydown	The user pushes a keyboard key
onload	The browser has finished loading the page




Basic Syntax - Declaring Variables

Var – Don't use – Variables defined with var are globally scoped

[Let](#) – Use this one

Const – Use if variable is not going to change

*Using Var, Let, or Const to initiate variables is not required, however it is good practice



More Syntax = vs == vs ===

= → Assignment Operator

== → Boolean “equal to”

=== → Compares both value and type

Example:

`0 == False // True because false and 0 hold the same boolean value`

`0 === False // False because false and 0 are different types`



Data Types

Number

Strings

Boolean

Object

Array

```
// Numbers:
let length = 16;
let weight = 7.5;

// Strings:
let color = "Yellow";
let lastName = "Johnson";

// Booleans
let x = true;
let y = false;

// Object:
const person = {firstName:"John", lastName:"Doe"};

// Array object:
const cars = ["Saab", "Volvo", "BMW"];

// Date object:
const date = new Date("2022-03-25");
```

Numbers (Int, Float, Double)

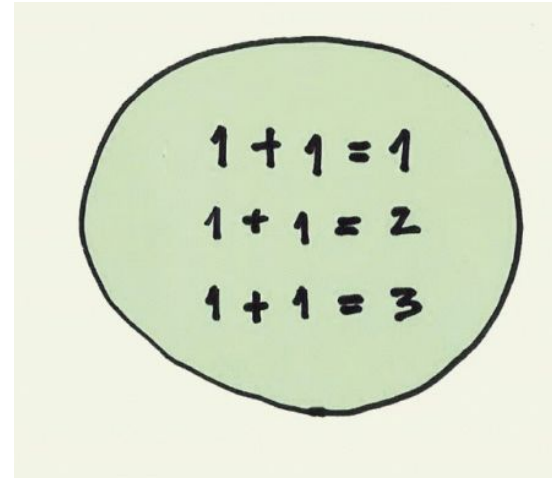
Always 64-bit Floating Point

What does this mean?

Numbers are only accurate up to 15 digits

Floating point arithmetic is not always accurate

[EXAMPLE](#)





Strings and String Methods

Single and double quotes both work

JavaScript supports many string methods: String length, String toUpperCase(), etc.

For string concatenation use “+” but be careful!

[Here's why](#)

Objects - How would we represent John in JavaScript?

First Name: John

Last Name: Doe

Age: 50

Eye Color: Blue



[This is how](#)

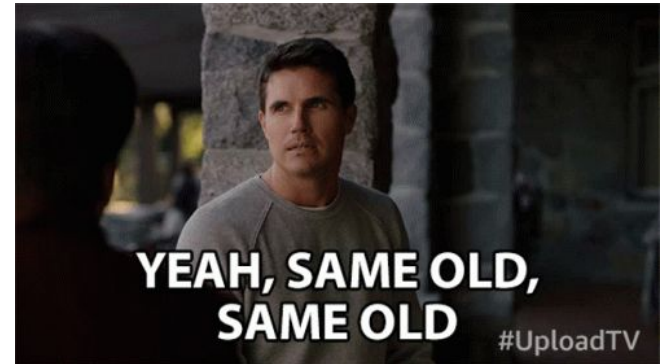
Arrays

Similar to arrays in other languages

Allows the storage of multiple values in one variable

Access values by index

[EXAMPLE](#)



More Basics

Loops

For

While

Switch Statements

If/Else



Functions

Parameters and return values

Example

```
// Function to compute the product of p1 and p2
function myFunction(p1, p2) {
  return p1 * p2;
}
```





Calling Functions

```
let x = toCelsius(77);  
let text = "The temperature is " + x + " Celsius";
```

OR

```
let text = "The temperature is " + toCelsius(77) + " Celsius";
```



Common library - jQuery

Events – Visitors' actions that a web page can respond to

Selectors – Select and manipulate HTML elements

EXAMPLE

```
$(document).ready(function(){  
  $("button").click(function(){  
    $("p").hide();  
  });  
});
```

`("button").click` – Event

`"p"` – Selector

`.hide()` – Action



Sources

https://en.wikibooks.org/wiki/JavaScript/History_of_JavaScript – History of JavaScript

https://en.wikipedia.org/wiki/Brendan_Eich – Information/Photo about Brendan Eich

https://www.w3schools.com/js/js_intro.asp – JavaScript Tutorial

<https://www.w3schools.com/jquery/default.asp> – JQuery